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Sydney. Botanic Gardens

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1901.

Legislative Assembly.

NEW SOUTH WALES.

# BOTANIC GARDENS AND DOMAINS.

(REPORT ON, FOR YEAR 1900.)

*Ordered by the Legislative Assembly to be printed*, 24 *July*, 1901.

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## ANNUAL REPORT.

*Introduction.*—I was absent from the Colony from the 16th June until the end of the year, Mr. George Harwood, Superintendent, Botanic Gardens, being gazetted Acting Director for the period of my absence. I owe Mr. Harwood, the overseers, and the staff generally my grateful thanks for the thorough way in which routine work has been performed, and for the excellent improvements which have been carried out during the half-year.

*Arrangement Ground.*—A beginning has been made to form a series of beds between the groups of dicotyledonous plants and the monocotyledons, but the work had to be postponed on account of pressure of work in other parts of the Garden.

*Other Beds and Borders.*—A handsome new carpet bed was formed on portion No. 22, Lower Garden, near the sea-wall. The work was executed by Messrs. Allen and Lovegrove, who have charge of the carpet bedding, and the design consisted of a large map of Australia, showing the names of the federating colonies, and bearing the words: "Federated Australia, 1900." I am not in favour of maps, diagrams, and profiles being introduced into carpet bedding as a rule; but the event commemorated in the present instance is altogether exceptional, and the design and execution of the bed in question have been warmly commended by the public.

New beds and borders have been made and planted in front of the herbarium, greatly improving the Garden in the vicinity of this building, and of the south end of the aviary and aviary paddock.

*Medicinal Plants.*—I never lose an opportunity of adding to these plants, and I trust that my correspondents throughout the world will kindly continue to send seeds and cuttings when convenient.

*Rock Garden.*—Minor improvements have been made to the rockeries, but my idea of having a good rockery—a veritable garden of rock plants—has not yet been realised. Of course, in this climate, we cannot expect to grow the Alpine plants one sees so frequently in European gardens; but, by way of compensation, there are many rock plants that can be grown here in the open air which cannot be so grown in Northern and Central Europe.

*Creek and Ponds.*—The ponds were drained off, and an enormous quantity of silt removed at a considerable expense. This work had not been carried out for many years, and was badly needed on sanitary grounds. Because of our sudden and violent storms, and because the drainage area of the ponds is steep, silt is readily deposited in the creek and ponds, but recent operations have at least removed old material of this kind. I am still very anxious for the adoption of a scheme which will largely prevent the deposit of silt in the creek and ponds, and this difficult matter is by no means being lost sight of.

Two new wooden bridges were erected to replace worn-out ones, one at the north and the other at the south of the large pond.

*Lawns.*—The silt already referred to as having been removed from the ponds has been utilised in raising and levelling the lawns in the Lower Garden, known as portions Nos. 19 and 20. In place of undulations, comparable to the waves of the sea, these lawns now exhibit an even surface, such as lawns ought to present. Hundreds of tons of material were used in the operation.

*Boundaries and Fences.*—The year 1900 is an important one in the history of the Gardens, because of two additions to its area.

On

On the west side of Farm Cove a large portion of land (5 acres) has been excised from the Inner Domain, while on the east side a much smaller area (32 perches) has been included from the Outer Domain.

1. Inner Domain.—The long, comparatively narrow strip taken is important, for two reasons: Firstly, it gives a neatly rounded-off scientific frontier between the Palace Garden, Inner Domain, and the Botanic Gardens, in place of the irregular outline hitherto defining them. Secondly, it adds a piece of ground of surpassing loveliness from a landscape point of view. The Garden now encircles Farm Cove, around practically the whole of its circumference, from the rising ground on the west, the most charming views, both of the remainder of the Garden and of beautiful Port Jackson are obtained; while its easterly aspect will enable visitors to enjoy rests in these charming surroundings to the full—during the afternoons (when the Garden is most used) with the westerly sun behind them. 2. The portion excised from the Outer Domain was only taken because it was found impossible to take the iron railings and stone coping along the former boundary, because of the uneven and even steep character of the ground.

The changes above indicated have necessitated the re-erection of the fence from the Palace Garden to the vicinity of the cottage of the head gardener, Government House Grounds.

Secondly, a handsome iron railing (6 ft. 8in. high) surmounting a stone coping 2 ft. high, is in process of erection from the sea-wall, on the eastern side of Farm Cove, and 97 feet northerly, making a graceful curve to the vicinity of Victoria Lodge, and then following the old boundary between the Outer Domains and Gardens, as far as the two gardeners' cottages. The contract for the railings, &c., was let for the sum of £2,500, and I hope to have something to say of this very great improvement in my next report.

Fences have also been erected to protect a series of high grass banks north-east of the sun-dial. This improvement has long been wanted; hedges have been planted alongside the new fences and in place of the unsightly banks with the grass worn away through children and others running and walking up and down it, and the bare places thus formed being deepened and broadened by our heavy rains, we have now the spectacle of well-kept grassy banks, refreshing to the eye.

*Plant-houses.*—In my last report I alluded to the fact that the materials for another iron hot-house, identical with two already in the Garden, had arrived from England. This house has now been erected, and has been in use for some months. It is, in fact, crowded already, as all our houses are, eloquent testimony to the way in which our collections are increasing. We have now three hot-houses of identical pattern. The one nearest the palm-house is now devoted to tropical ferns, the centre one to orchids, as before, while the new one contains the collection of miscellaneous plants formerly in the fern-house. I am still, like Oliver Twist, asking for more. At present, as I mentioned in my last report, we badly want separate houses for palms, aroids, aquatics, and economic plants. The public are frequent in their expressions of pleasure at the recent improvements in the glass-houses, and if the Chief Secretary should see fit to ask Parliament for a further appropriation to enable us to grow additional plants which cannot be grown out of doors in our climate, I venture to say that such a course would give pleasure to a large number of our citizens.

I am very anxious, indeed, to further group and classify our plants under glass, and this is only possible with additional houses. Because of the varying size and difference of treatment of plants it is not practicable to arrange them strictly in natural orders, and the orders in proper sequence, but such an arrangement is my ideal, and I shall strive towards it. The keeping of allied plants together will enable a visitor to see at a glance what we have got—to note our strong points and our deficiences, and he will be able to acquire knowledge which can only be gained by a convenient comparison of forms. At present the arrangement of a so-called "miscellaneous house" reminds one of the art of a window-dresser; effect is chiefly gone in for as in the shop window of a grocer or a draper, and hunting for a plant amongst the display of pretty or interesting things becomes a matter of difficulty. We know ourselves where our plants are, but a visitor who can only occasionally see our treasures often hunts vainly for a plant in the kaleidoscopic changes which are constantly taking place in any particular house.

We have taken the opportunity presented by the laying of pipes to the new house to re-construct the heating arrangements in the other houses—to the very great advantage of the plants themselves; the convenience of working the system being improved at the same time. This new piping and alterations of existing hot-water pipes cost about £90. The new hot-house cost in England and for freight £460 2s. 6d., and the contract for brickwork, erection of the house, &c., £200.

*New Buildings (other than plant-houses).*—The National Herbarium building whose structure was described in my last report was formally handed over to me in the early part of the year.

Then the task of arranging the contents of the herbarium and of preparing the museum for the public was entered into in earnest. It was not finished before my departure from the Colony in June, and my assistants, Mr. Betche, Miss Hynes, and Mr. Camfield, worked so hard that it was very nearly ready for opening at the end of the year. I hope to give an account of the official opening in my next report.

*National Herbarium (Phanerogams and Ferns).*—Mr. Betche completed the arrangement of the Australian collection during the year. We now know our weak places, and are endeavouring to strengthen them.

Miss Sarah Hynes, B.A., who joined the staff as Second Botanical Assistant on 1st July, has done good work in the herbarium, her chief duty being the arrangement of the exotics, which already amount to a large number, and are being steadily added to.

Mr. Camfield has rendered yeoman service in the collection and determination of both Australasian and exotic plants, and continues in the most unselfish and unassuming way to devote much of his spare time to the development of the collections of this institution.

The despatch of certain botanical specimens to M. Michel Gandoger, in the ordinary way of exchange, has resulted in a "Note sur la Flore du Mont Kosciusko (Australie Méridionale)" by that gentlemen in the *Bulletin de la Société botanique de France*, Tome XLVI, pp. 391-4 (10th November, 1899).

Following are some supposed new forms described by M. Gandoger (I think on imperfect evidence):—

*Carex Maidenii*, Gandoger; Syn. *C. vulgaris*, Fries.; var. *gaudichaudiana*, Boot. (B. Fl. vii, 442.)
*C. cæspitosa*, Linn. (F.v.M.'s Census). *C. gaudichaudiana*, Kunth. (Kükenthal).
*Luzula novæ-cambriæ*, Gandoger. Is the alpine form of *L. campestris*, DC.
*Trisetum subspicatum*, forma *Maidenii*, Gandoger. Seems to be only a luxuriant form.
*Potamogeton odontocarpus*, Gandoger. Probably *P. Tepperi*, A. Bennett.

*Mosses.*—Mr. W. Forsyth, in charge of the moss-herbarium, reports as follows:—

"I have pleasure in reporting satisfactory progress with the moss-herbarium during 1900. During the months of September, October, and November I was fortunate in making several fine collections of N.S.W. species in the following districts:—Richmond and Tweed Rivers, Apsley and Tia Falls, New England, and in the southern parts of the Colony—*i.e.*, the country surrounding Germanton and Tumberumba. During the year we have received several valuable named collections, viz.—From Prof. Urban, of Berlin, a collection of Argentine species; Mr. Bailey, of Brisbane, a collection of Queensland species; Rev. W. W. Watts, Ballina, a collection of Norwegian species (fine specimens); and from Dr. F. W. Naylor-Beckett, Christchurch (New Zealand), an excellent collection of New Zealand species."

A collection of Argentine species has been sent to the Rev. W. W. Watts and a collection of N.S.W. mosses to Dr. F. W. Naylor-Beckett, of New Zealand.

*Algæ.*—Mr. A. W. S. Lucas, M.A., the honorary curator of the Algæ, reports that he is making fair progress with the naming and arrangement of the Algæ, and regrets that the time at his disposal has not permitted him to put the duplicates in order for purposes of exchange.

*Fungi.*—Mr. Alexander Grant, in charge of the collection of fungi, has been assiduous in the collection of such plants during the year; has named those sent by a large number of correspondents, and is busy preparing the spirit collection for the museum and is also arranging the microfungi for the herbarium. A large number of forms have been brought in from the garden, and the collection is not only attaining respectable dimensions, but a beginning has been made in the way of exchanges.

The following descriptions of new Australian microfungi are contained in a paper, "Fungi Novi Australiani," by Dr. Fl. Tassi, of Siena, Italy. Many of the species are based on material sent from this establishment, but Dr. Tassi gives no clue to the sender in each case.

*Hypocopra australiana*, Fl. Tass.—On rotten dung, Sydney.
*Sphaerella fuscata*, Fl. Tass.—On dead leaves of *Drymys dipetala*, F.v.M.; N.S. Wales.
*Sphaerella Maidenii*, Fl. Tass.—On dead twigs of *Myoporum acuminatum*, R.Br.; Sydney.
*Sphaerella ascoscypha*, Fl. Tass.—On dry twigs of *Casuarina sp.* N.S. Wales.
*Sphaerella Novæ-Hollandiæ*, Fl. Tass.—On the upper side of a Pteris frond.
*Massarinula appendiculata*, Fl. Tass.—On dead branches of *Eucalyptus punctata*, DC.; N.S. Wales.
*Didymosphaeria eumorpha*, Fl. Tass.—On leaves of *Proteaceae;* Sydney.
*Massaria Eucalypti*, Fl. Tass.—On twigs of *Eucalyptus Watsoniana*, F.v.M., Queensland.
*Leptosphaeria Kulingiæ*, Fl. Tass.—On twigs of *Kulingia prostrata*, Maiden and Betche; Sydney.
*Metasphaeria Marianthi*, Fl. Tass.—On dead twigs of *Marianthus procumbens*, Benth.; N.S. Wales.
*Ceriospora colorata*, Fl. Tass.—On dead twigs of *Hakea pugioniformis*, Cav.; N.S. Wales.
*Catharinia australiana*, Fl. Tass.—On dead twigs of *Casuarina sp.*; Sydney.
*Microthyrium corynellum*, Fl. Tass.—On leaves of *Leptospermum arachnoides*, *Sm.*; N.S. Wales.
*Asteridium celastrinum*, Fl. Tass.—On leaves of *Celastrus Cunninghamii*, F.v.M.; Sydney.
*Phyllosticta Mirbeliae*, Fl. Tass.—On living leaves of *Mirbelia grandiflora*, Ait.; N.S. Wales.
*Phyllosticta Isopogonis*, Fl. Tass.—On living leaves of *Isopogon Dawsoni*, R.T.B.; Sydney.
*Phoma Marianthi*, Fl. Tass.—On dead twigs of *Marianthus procumbens*, Benth.; N.S. Wales.
*Phoma Angophorae*, Fl. Tass.—On a dried specimen of *Angophora cordifolia*, Cav.; Sydney.
*Phoma Melaleucæ*, Fl. Tass.—On dead twigs of *Melaleuca hypericifolia*, *Sm.*; N.S. Wales.
*Macrophoma Eugeniae*, Fl. Tass.—On rotten fruit of *Eugenia brachyandra*, Maiden and Betche; N.S. Wales.
*Macrophoma Macadamiae*, Fl. Tass.—On dried drupe of *Macadamia ternifolia*, F.v.M.; N.S. Wales.
*Trigonosporium n. gen.*
*Trigonosporium australiensis*, Fl. Tass.—On dead twigs of *Cupania serrata*, F.v.M.
*Ascochyta oxyspora*, Fl. Tass.—On dead stem of *Comesperma sphaerocarpum*, Steetz.; N.S. Wales.
*Diplodina Watsoniana*, Fl. Tass.—On twigs of *Eucalyptus Watsoniana*, F.v.M.; Queensland.
*Diplodia Barringtoniae*, Fl. Tass.—On dried berries of *Barringtonia speciosa*, L.; Tasmania (*sic*).
*Diplodiella Banksiae*, Fl. Tass.—On old follicles of *Banksia marginata*, Cav.; Melbourne.
*Stagonospora australiana*, Fl. Tass.—On twigs of a shrub, Sydney.
*Zythia Atriplicis*, Fl. Tass.—On dried bracts of *Atriplex halimoides*, Lindl.; Melbourne.
*Didymosporium Acaciae*, Fl. Tass.—On dried pods of *Acacia melanoxylon*, R.Br.; N.S. Wales.
*Pestalozzia Gastrolobii*, Fl. Tass.—On dead pods of *Gastrolobium Boormanii*, Maiden and Betche; N.S. Wales.
*Pestalozzia eupyrena*, Fl. Tass.—On dry pods of *Bossiaea ensata*, Sieb.; Sydney.
*Pestalozzina exilis*, Fl. Tass.—On dead bark of *Eucalyptus eximia*, Schauer; N.S. Wales.
*Coniosporium Sterculiae*, Fl. Tass.—On dried leaves of *Sterculia diversifolia*, G. Don; Sydney.
*Tubercularia Macrozamiae*, Fl. Tass.—On dry cones of *Macrozamia Perowskiana*, Miq.; N.S. Wales.

*Lichens.*—A number of acquisitions have been made to the collection during the year, but the lichen herbarium has not been arranged for want of the assistance of a specialist in this group of plants.

*A Laboratory wanted.*—Since I remarked on this subject in my last year's report I have visited the Jodrell Laboratory at Kew, and other laboratories for plant physiology, &c., on the continent of Europe. I am more than ever impressed with the desirability of erecting a neat building for the purpose within the Gardens, to further the researches of botanists other than systematists, who are already fairly well provided for.

*Botanical Museum.*—I have already made some allusion to the condition of affairs in the botanical museum during the year. In February there arrived a notable exhibit in the form of a replica of that bust of Robert Brown which was erected by Miss Hope Paton, his niece, in Montrose, Scotland, in front of the house in which he was born in 1776. The bust in question is the work of Mr. D. W. Stevenson, of Edinburgh, and the original was unveiled with some ceremony by the Provost of the town on 18th October, 1895. A tablet bears the following description:—"Robert Brown, D.C.L. Oxon., LL.D. Edin., F.R.S. London, President of the Linnean Society, Member of the Institute of France. Born in this house 21st December, 1778. Died in London 10th June, 1858. 'Botanicorum facile princeps.' Alex. von Humboldt."

In June I had the pleasure of welcoming the members of the Horticultural Association of New South Wales in the museum building. Unfinished as its contents were, the members expressed themselves as much pleased with what they saw, and I hope this pleasant gathering is the forerunner of meetings in the building of this and other horticultural and scientific societies.

*Public Lectures.*—I gave no public lectures on botanical subjects during the year. I had arranged for some during the winter months, but my departure for Europe necessitated the cancelling of all such engagements.

*Departments of Agriculture and Forests.*—I have made many reports, particularly to the former Department, during the year. The majority of the reports are on weeds, whether they are likely to be injurious to stock, or deleterious to the farmer or pastoralist in any way. In addition to these, reports are asked on the most varied and interesting subjects. I often report at length for the benefit of farmers, feeling sure that much practical good is done in that way. The reports and articles printed in the *Agricultural Gazette* will be found referred to below.

*Botanical Survey of the Colony.*—Work in this direction has advanced a stage during the year, and I am collecting the necessary maps for the purpose of recording the indigenous flora.

*Collecting and Botanical Tours.*—I made but few botanical trips during the year, owing to my departure for Europe. Before my departure from the Colony the staffs of the whole of the establishments under my supervision very generously presented me with a handsome souvenir in the shape of a beautifully fitted travelling bag. The kind words that were said on that occasion were not empty words, but were expressive of the very cordial relations that exist between the staff and myself. Following are my principal journeys:—1. Melbourne, The Dandenong, Wangaratta, The Bright District, and the Victorian Alps—an extensive and profitable tour, January. 2. Wingello District, March. 3. Wyong District, March. 4. Clarence Siding and the highest parts of the Blue Mountains, April.

In the United Kingdom and Ireland, France, Germany, Holland, Belgium and Ceylon I visited many of the principal botanic gardens, parks, and herbaria. I attended the International Botanical Congress held in connection with the Paris Exhibition in October and the botanical section of the British Association for the advancement of Science held at Bradford in September. Everywhere I was received with great kindness and consideration. I have cemented old friendships, made new ones, and, above all, I have obtained a fund of practical information in regard to botanical and horticultural establishments that will be of the highest value to me in the carrying out of my duties. My time was limited, but I tried to make the best of it, and I have brought back with me a mass of information to which I frequently refer, I trust, with profit.

The botanical trips undertaken by Mr. W. Forsyth are recorded in his report (supra) on the moss-herbarium.

*Publications.*—(1) Notes from the Botanic Gardens, No. 6 (with Mr. Ernst Betche).

New species and varieties:—

*Leptospermum scoparium*, Forst.; var. *rotundifolium.*—Shoalhaven River (W. Forsyth).

*Helichrysum rosmarinifolium*, Less.; var. *stenophyllum.*—Jenolan Caves (W. F. Blakely).

*Epacris Hamiltoni*, a species allied to *E. paludosa* and *E. Calvertiana*, from the Blue Mts. (A. A. Hamilton), together with records of *Heliotropium paniculatum*, R.Br. *Lepidosperma tortuosum*, F.v.M., and *Cyperus eragrostis*, Vahl., as new for the Colony.

(2) *Observations on the Eucalypts of New South Wales. Part* VII. (with Mr. Henry Deane, M.A.).

*Eucalyptus affinis*, sp. nov. from the western part of the Colony and showing affinities with *E. sideroxylon*, A. Cunn., and *E. hemiphloia*, F.v.M. It has been suggested that it is a hybrid between these two species.

*Eucalyptus Cambagei*, sp. nov., spread over a considerable area of the southern and western districts. It is nearly related to *E. goniocalyx*, F.v.M., from which it is sharply defined by the sucker leaves and bark. It is known as "Bundy" in the Western districts.

*Eucalyptus Stuartiana*, F.v.M.; var. *parviflora*, var. nov. A small flowered and fruited form as the name indicates, from several parts of the Colony.

Notes on an apparent case of hybridisation between *E. siderophloia*, Benth., and *E. hemiphloia*, F.v.M., also miscellaneous observations on *E. pulverulenta*, Sims, *E. punctata*, DC., &c.

(3) Articles in the *Agricultural Gazette* of New South Wales:—

Some remarks on the sand-drift problem (with especial reference to Sydney and Newcastle).

Zygophyllum from the point of view of the grazier.

Useful Australian Plants:—
  Forest Red Gum (*Eucalyptus tereticormis.*, Sm.).
  Yellow Box (*Eucalyptus melliodora*, A. Cunn.).
  Black Sally (*Eucalyptus stellulata*, Sieb.).
  A White or Cabbage Gum (*Eucalyptus coriacea*, A. Cunn.).
  *Aristida Behriana*, F.v.M.
  *Aristida vagans*, Cav.
  *Aristida ramosa*, R.Br.
  *Aristida calycina*, R.Br.
  *Chamærophis spinescens*, Poir.
  *Chrysopogon Gryllus*, Trin.
  *Chloris ventricosa*, R.Br.
And various shorter botanical notes.

In the *Public Service Association Journal* I wrote popular articles on the prominent plants in the Garden, in flower or fruit, month by month, for the months of March, April, May, and June. These articles, like my other work, were interrupted by my visit to Europe.

*Guide to Gardens.*—I have spent a good deal of time during the first half of the year in the laborious work of obtaining additional materials for the much-needed guide. I have modified my former plan of preparing a complete guide to the Gardens, and have, instead, decided to prepare a guide to the principal plants and points of interest. This is well under weigh, and if it is not printed during 1901 it will be for some reason unforeseen by me. I have also in contemplation the issuing of cheap guides to special groups of plants, *e.g.*, the Cycads, Conifers, Palms, contents of the glass-houses, and so forth. In this way I shall utilise certain matter which I have accumulated, and which I have not inserted in the guide now nearly ready for issue.

*Water Supply.*—Following is the registered supply of water during the year :—

Meter No. 215, Gardens, 3,543,000 gallons.
Meter No. 217, W.C.'s, &c., 1,491,000 gallons.
Meter No. 221, Propagating Ground, 787,000 gallons.
Meter No. 224, Museum, Aviary, &c., 203,000 gallons.
Meter No. 225, Director's Residence, Cactus beds, &c., 223,000 gallons.

*Roads and Paths.*—A good deal of work has been done to our roads and paths during 1900 ; at the same time they have received a good deal of detriment during the year by sudden torrential storms. Sydney is sub-tropical, has a heavy rainfall, and has liability to very heavy downpours. The undulations and steepnesses to which the Gardens owe so much of their beauty add force to the destruction which these sudden downpours involve. Long stretches of gravelled path have been laid (and gravel is expensive in Sydney), and in a few days I have had the mortification of finding the path torn up and much of the gravel washed into a muddy pond. This is why, although I detest asphalt, this material has had to replace gravel in some of the walks, and must be still further used in the Garden at an early date. Following are details of the work completed:—

(*a*) Several walks regravelled in the Upper Garden.
(*b*) Extensive alterations made to the walks which have been asphalted in the vicinity of the Botanical Museum and Herbarium.
(*c*) Walks reformed and asphalted connecting the Botanic Gardens with the Garden Palace grounds. These alterations are in consequence of the alterations in the vicinity referred to in my last report.
(*d*) The rustic steps in the vicinity of Victoria Lodge have been repaired and asphalted.

*Street tree-planting.*—This work has been carried out by several suburban municipalities, and there seems to be a growing feeling that something should be done in this direction in the Municipality of Sydney itself. In saying this I do not lose sight of the fact that the narrowness of many of the Sydney streets renders planting in them a matter of impracticability.

*Plague of Flying-foxes.*—During the month of March we were visited by immense numbers of flying-foxes. There must have been many thousands of them, and some of the large trees were quite black with them. We called in the aid of a number of local sportsmen, who shot large numbers, and the destructive animals were all killed or flew away in about a week from the first appearance of the swarm. It is many years since the Gardens were visited by a plague of these animals.

*Correspondence.*—Letters registered from 1st January to 31st December, 1900, 4,554, being 716 fewer than during the corresponding period of 1899. Letters despatched from 1st January to 31st December, 1900, 3,200, being 2,030 fewer than during the corresponding period of 1899. I believe that my absence from New South Wales is mainly responsible for this great falling off in letters to correspondents.

### *Seeds received and despatched.*

BOTANIC GARDENS.

| *Received.* | *Despatched.* |
|---|---|
| | Amsterdam, Holland—<br>80 packets. |
| Baroda, India—<br>52 packets. | Baroda, India—<br>86 packets. |
| Belgrade, Servia—<br>76 packets. | Belgrade, Servia—<br>73 packets. |
| | Berkeley, California—<br>20 packets Eucalyptus, 14 packets Acacia. |
| Berlin, Germany—<br>Seeds of *Landolphia Heudelotii.* | Berlin, Germany—<br>107 packets. |
| | Berne, Switzerland—<br>57 packets. |
| | Bombay, India (Victoria Gardens)—<br>34 packets. |
| Breslau, Germany—<br>22 packets. | |
| Calcutta, India—<br>Seeds of *Licuala gratissima,*<br>*Pterocarpus microcarpus,*<br>*Ormosia laxa.* | Calcutta, India—<br>Seeds of 5 species of Eucalyptus, in quantity,<br>*Acacia Baileyana,*<br>*Paspalum dilatatum* (in quantity) |
| Cape Town, Cape Colony—<br>11 packets. | Cape Town, Cape Colony—<br>23 packets. |
| Ceylon (Peradeniya)—<br>20 packets. | Ceylon—<br>56 packets. |
| | Christiana, Norway—<br>82 packets. |

| Received. | Despatched. |
|---|---|
| Demerara, British Guiana—<br>Seeds of *Corypha umbraculifera*. | |
| Durban, Natal—<br>55 packets. | Durban, Natal—<br>28 packets. |
| | Edinburgh, Scotland—<br>138 packets. |
| Erlangen, Bavaria—<br>63 packets. | |
| Fiji—<br>20 miscellaneous plants.<br>3 packets. | |
| | Florence, Italy—<br>115 packets. |
| Geneva, Switzerland—<br>53 packets. | |
| Gold Coast, Aburi—<br>4 packets. | Gold Coast, Aburi—<br>47 packets. |
| | Hobart, Tasmania—<br>68 packets. |
| | Jamaica, West Indies—<br>38 packets. |
| Hong Kong—<br>11 packets. | Hong Kong—<br>25 packets. |
| | Kew, England—<br>218 packets seeds.<br>5 species Eucalyptus, and *Acacia Baileyana* in quantity. |
| Lausanne, Switzerland—<br>48 packets. | |
| Leyden, Holland—<br>25 packets. | Leyden, Holland—<br>45 packets. |
| | Lucknow, India—<br>32 packets. |
| | Madrid, Spain—<br>9 packets. |
| | Melbourne, Victoria—<br>148 packets. |
| Missouri (St. Louis), U.S. America—<br>7 species of seeds of *Yucca*. | Missouri (St. Louis), U.S. America—<br>71 packets. |
| | Montpellier, France—<br>52 packets. |
| | München, Bavaria—<br>39 packets. |
| Münster, Germany—<br>70 packets. | Münster, Germany—<br>24 packets. |
| Nantes, France—<br>24 packets. | Nantes, France—<br>38 packets. |
| Ootacamund, India—<br>57 packets. | Ootacamund, India—<br>36 packets. |
| Oxford, England—<br>28 packets. | |
| | Palermo, Sicily—<br>210 packets. |
| Paris, France—<br>2 packets. | |
| Rockhampton, Queensland—<br>1 bag each *Wallichia caryotoides*,<br>*Quisqualis indica*,<br>*Livistona borbonica*. | Rockhampton, Queensland—<br>30 packets. |
| | Rome, Italy—<br>103 packets. |
| Saharanpur, India—<br>57 packets. | Saharanpur, India—<br>12 packets. |
| Saigon, Cochin China—<br>12 packets. | Saigon, Cochin China—<br>50 packets. |
| | Siena, Italy—<br>14 packets. |
| | Singapore, Straits Settlements—<br>40 packets. |
| Tokyo, Japan—<br>109 packets. | |
| Trieste, Austria—<br>57 packets. | |
| Utrecht, Holland—<br>24 packets. | Utrecht, Holland—<br>108 packets. |

## OTHER BOTANICAL ESTABLISHMENTS.

| Received. | Despatched. |
|---|---|
| | Ames Botanical Laboratory, North Easton, Mass., U.S.A.—<br>3 packets *Drosera*. |
| Barbadoes, West Indies, Imperial Department of Agriculture—<br>1 bag *Abrus precatorius*.<br>1 bag *Adenanthera pavonnia*.<br>2 bags *Cæsalpinia bonduccila*. | |
| | Brisbane, Colonial Botanist—<br>6 packets Eucalyptus seed. |
| British Columbia, Minister for Agriculture—<br>*Cratægus rivularis*.<br>*Rosa nutkiana*. | |
| | Buysman, Dr., Middleburg, Holland—<br>30 packets. |
| Hanbury, Chevalier, La Mortola, Italy—<br>56 packets. | Hanbury, Chevalier, La Mortola, Italy—<br>122 packets. |
| | Kansas, United States of America, Agricultural Experiment Station—<br>28 packets of grasses and saltbushes. |
| Madras Agri-Horticultural Gardens—<br>6 packets seeds. | Madras, India, Agri-Horticultural Gardens—<br>146 packets.<br>2 lb. *Paspalum dilatatum*. |

*Received.*

San Francisco, U.S.A., Golden Gate Park—
33 packets.
Sapporo, Japan, Agricultural College—
27 packets.
Washington, U.S.A., Department of Agriculture—
Seeds of *Stipa leucothrix.*
Western Australia, Department of Agriculture—
11 packets.

*Despatched.*

New York, U.S.A., Department of Parks, Borough of the Brenx—
160 packets.
Oklahama, U.S.A., Agricultural Experimental Station—
14 packets grasses.
Sappero, Japan, Agricultural College—
40 packets.
Vienna K.K. Naturhist. Hofmuseum—
38 packets Epacrideæ and Proteaceæ.
Washington, U.S.A., Department of Agriculture—
40 packets.
Western Australia, Agricultural Experiment Farm, Drakesbrook—
17 packets.

## FIRMS AND PRIVATE INDIVIDUALS.

*Received.*

Axford, Dr., H.M.S. "Pylades"—
*Cyphokentia samoensis.*
Bell, M., National Park—
*Telopea speciosissima.*
Brentnall, Mr., Sydney—
*Leucaudendron argenteum.*
Bruce, Baxter, Honolulu—
*Persea gratissima.*
*Prosopis juliflora.*
Belt made of seeds.
Burton, R. F. L., Apiti, New Zealand—
Seeds of New Guinea Lemon; also tubers of Terrestrial Orchids from New Guinea and New Zealand.
Cundall, C. H., Manilla—
*Calamus sp.*
Dall James, Collingwood, New Zealand—
*Myrsine salicina.*
Darley, C. W., Public Works Department, Sydney—
2 bags *Acacia Baileyana.*
Douglas, Hon. T., Thursday Island—
Box Miscellaneous Seeds.
Freeman, W. G., 7, Gresham-street, Sydney—
*Capparis Mitchelli.*
Herb and Wulle, Naples, Italy—
26 packets.
Jackson, H. V., Wollongbar—
*Macadamia ternifolia*, Bag of.
Koch Max, Mt. Lyndhurst, S. Australia—
60 packets.
Paddock, W., Hill Top—
1 box Acacia Seeds.
Preedy, Commander H., H.M.S. "Torch"—
*Persea gratissima.*
Rumsey, H. J., Barber's Creek—
*Telopea speciosissima.*

*Despatched.*

Aspluna, Ivor C., Canley Park, Rahatu, New Zealand—
*Opuntia Ficus-indica.*
Bossche, M. van den, Tirlement, Belgium—
15 packets.
British Central Africa Chamber of Agriculture and Commerce, Blantyre, *via* Chinde, B.C. Africa—
28 packets.
Chemical Agriculture Office of Province of Buenos Ayres La Plata, Argentine—
8 varieties of maize.
Dixon, Hugh, Park-street, Sydney—
5 packets *Pittosporum.*
Farrar, W., Lambrigg, Tharwa—
*Lagunaria Patersoni.*
France, The Consul General for, Bond-street, Sydney—
6 lb. *Tricholæna rosea.*
Garbari, Dr., Trento, Austria—
5 packets *Cycadeæ.*
Gors, Hon. Walter, Port Moresby—
*Pinus insignis.*
Luehmann, J. G., Melbourne—
*Ficus macrophylla.*
Malcolm, G. H., Labuan, British North Borneo—
8 packets.
Matheson, H., Estancia La Longa, Mackenna, F.C.P. Argentine—
41 packets.
Parchase, Samuel, Parramatta—
6 packets Miscellaneous Seeds, and spores of 8 species of Ferns.
Rumsey, H. J., Barber's Creek—
5 packets.
Tait, W. C., Oporto, Portugal—
16 packets.
Tracy, Rev. C. T., Anatolia College, Turkey-in-Asia—
11 packets Saltbush Seeds.
Wiley, W. G., Wiester, Westmoreland Co., Pennsylvania, U.S.A.—
50 packets.
Zouch, C. G., Lands Department, Sydney—
8 packets.

## *Plants Received and Despatched.*

*Received.*

Bailey, J. F. Brisbane—
4 Orchids.
Bellbridge, A. J., Albury—
4 roots *Hedychium coronarium.*
Bowden, H., Thursday Island—
26 *Dendrobium Johannisii.*
8 ,, *undulatum.*
1 ,, *teretifolium.*
17 ,, *sp.*
6 *Pholidota imbricata.*
Burns, Philp, & Co., Sydney—
1 Wardian case of Miscellaneous Plants received by them from New Guinea without any marks or address.
Corney, Mrs., Fiji—
5 *Alocasia macrorrhiza variegata*
1 *Dracæna Broomfieldi.*
2 *Cordyline, sp.* (cuttings).
20 *Croton sp.* (cuttings).

Fiji, Botanic Station, Suva—
20 miscellaneous plants.
Fitzdardinge, J. F., 62, Hunter-street, Sydney—
1 *Cycas sp.* Noumea.
Grimes, Mrs., Murwillumbah—
1 *Dendrobium Berkeleyi.*
1 ,, *tetragonum.*
1 *Sarcochilus sp.*
1 *Calanthe veratifolia.*
1 ,, *sp.*
1 *Gleichenia flabellata.*
1 *Lycopodium densum.*
1 *Hoya australis.*
1 *Pittosporum undulatum.*
Hart, Mrs. G. L., Brisbane—
1 *Dendrobium bigibbum.*
1 *Tithonia tagetiflora.*
1 *Hoya sp.*
1 *Sarcochilus sp.*
King, Mrs., Darling Point—
2 *Vanda tricolor.*
3 ,, *suavis.*
3 ,, *sp.*
3 *Aerides virens.*
1 ,, *quinquevulnera.*
1 ,, *lamellata.*
1 ,, *sp.*
2 *Grammatophyllum multiflorum* (together with a number of valuable plants which were dead on arrival).
Marks, Mrs. James, "Elystan," Woollahra—
1 *Pandanus Baptistii* (a very handsome specimen).

Otton, Miss M. L., Numerella, Bega—
1 *Cymbidium suave.*
Pearce Bros., Randwick—
1 *Anthurium Ferrierense.*
1 ,, *Scherzerianum maximum.*
6 *Chrysanthemum frutescens.*
Pedley, Percival R., Sydney—
12 bulbs of *Amaryllis*, sp., from South Sea Islands.

Preedy, Commander, H.M.S. "Torch"—
1 *Dendrobium*, sp.

Richardson, Mrs., Arncliffe—
1 box Dahlia Bulbs.

Sanders & Co., St. Albans, Herts, England—
20 Miscellaneous Plants.
Woodford, C. M., British Commissioner, Solomon Islands—
7 *Dendrobium Woodfordi.*
7 ,, sp.

*Despatched.*

Cairns, Queensland, Kamerunga State Nursery—
37 Miscellaneous Plants.
Campion, T. A., Bielsdown Creek, Dorrigo—
1 bundle Willow-cuttings.
Chattergee, S. P., Calcutta.
150 *Dendrobium phalænopsis*
50 ,, *bigibbum.*
50 ,, *Johannisii.*
24 ,, *undulatum.*
1 ,, *superbiens.*
1 ,, *phalænopsis Schrœderianum.*

Farrar, W., Lambrigg, Tharwa—
1 bundle Willow-cuttings.

Fitzhardinge, J. F., 62, Hunter-street, Sydney—
4 trees.

Matson, F., Yowie Bay—
36 Miscellaneous Plants.
New Caledonia, Union Agricole, Noumea
48 Roses.
New Guinea, The Bishop of—
1 small Wardian Case of Plants.

Pockley, F. Antill, Sydney—
1 root *Nymphæa lutea.*

Purchase, Samuel, Parramatta—
*Strobilanthes* cuttings.
Richardson, Mrs., Arncliffe—
Roots of *Nymphæa stellata.*
,, ,, *sulphurea.*
,, ,, *Devoniensis.*
,, *Pontederia cordata.*
Rose, Thos., M.P., Burwood—
36 Miscellaneous Plants.
Ross, Dr., 164 Albion-street, Surry Hills—
12 Miscellaneous Plants.
Sanders & Co., St. Albans, Herts, England—
1 case seed, *Areca sapida.*

### *Living plants despatched from 1st June to 31st December, 1900.*

| | |
|---|---|
| Public Schools, number of consignments | 339 |
| Railways, number of consignments | 74 |
| Court-houses and Gaols, number of consignments | 34 |
| R.C. Convents, number of consignments | 21 |
| R.C. Churches, number of consignments | 29 |
| C. of England Churches, number of consignments | 28 |
| Presbyterian Churches, number of consignments | 7 |
| Wesleyan Churches, number of consignments | 6 |
| Congregational Churches, number of consignments | 2 |
| Baptist Churches, number of consignments | 1 |
| Union Churches, number of consignments | 2 |
| Lutheran Churches, number of consignments | 1 |
| Cemeteries, number of consignments | 1 |
| Hospitals, number of consignments | 8 |
| Asylums, number of consignments | 4 |
| Post Offices, number of consignments | 12 |
| Reserves, number of consignments | 9 |
| Lands Offices, number of consignments | 3 |
| School of Arts, number of consignments | 4 |
| Colleges, number of consignments | 8 |
| Water and Sewerage Board, number of consignments | 7 |
| Miscellaneous, including experimental farms, military stations; also a few private persons by way of exchange | 34 |
| Total | 634 |

Made up as follows:—

| | |
|---|---|
| Trees | 16,392 |
| Shrubs | 17,468 |
| Miscellaneous plants | 3,674 |
| Total | 37,534 |

### *Herbarium Specimens presented.*

Axford, Dr., H.M.S. "Pylades"—
Six species of Norfolk Island plants.
Brown, G. R., Port Macquarie—
Ripe fruits of *Melodinus australis.*
Buitenzorg, Java, Botanic Gardens—
Specimens of *Eucalyptus alba.*
Burton, R. J. L., Apiti, New Zealand—
One box of New Zealand mosses.
Cambage, R. H., Department of Mines, Sydney—
Miscellaneous New South Wales plants.
Cocks, S., Kiama—
Specimens of sea-weed from Kiama.
Gill, Walter, Conservator of Forests, Adelaide—
South Australian plants.
Gregson, Jesse, Newcastle—
Miscellaneous New South Wales plants.
King, Miss Georgina, Homebush—
Various New South Wales specimens.
Melbourne, Department of Agriculture—
Specimen of a fungus from Victoria.
Moore, Miss, Perth—
Herbarium and Museum species of 29 West Australian plants.
Robinson, I., Norfolk Island—
Fruits of *Milletia australis* and *Capparis sp.*

### *Herbarium Specimens purchased.*

*a.* 6 albums of types of Algæ from the Pacific Islands and New South Wales. (Collected by Harvey.)
*b.* Kneucker's *Carices exsiccatæ*—210 species.
,, *Glumaceæ exsiccatæ*—90 species.
Mosses, Lichens, Hepaticæ, and Ferns, from Lord Howe Island.

### *Herbarium Specimens exchanged.*

| *Received.* | *Despatched.* |
|---|---|
| Beckett, Dr. Naylor, New Zealand—<br>50 species of New Zealand mosses. | |
| Berlin Botanical Museum—<br>R. Brown's and Sieber's types of Eucalypts. | Berlin Botanical Museum—<br>50 species of Australian plants. |
| Boissier Herbier, Chambèsy, near Geneva, Switzerland—<br>209 species from Egypt and Spain. | Boissier Herbier, Chambèsy, near Geneva, Switzerland—<br>100 species of Australian plants.<br>116 species and varieties of Eucalypts. |
| Bremen, Germany, Städt. Museum (Prof. Schauinsland)—<br>15 species of Australian plants, collected by E. Dämel in 1865. | Bremen, Germany, Städt. Museum (Prof. Schauinsland)—<br>50 species of Australian plants. |
| British Columbia, Victoria, Department of Agriculture—<br>630 species of British Columbian plants. | British Columbia, Victoria, Department of Agriculture—<br>200 species of Australian plants. |
| | British Museum, London—<br>67 rare or new species of New South Wales and South Australian plants.<br>100 species of Australian plants. |
| Burtt-Davy, Prof., Berkeley, California—<br>100 species of Californian plants. | |
| Copineau, Mons., and Mouillefarine, Mons., France—<br>377 species of European plants. | Copineau, Mons., and Mouillefarine, Mons., France—<br>200 species of Australian plants. |
| Durban Botanic Gardens, Natal—<br>249 species of Natal plants. | Durban Botanic Gardens, Natal—<br>300 species of Australian plants. |
| Edinburgh, Scotland, Regius Keeper of the Royal Botanic Gardens—<br>24 species of plants collected by Robert Brown, 1802-1805. | |
| | Gandoger, Prof., Arnas (Rhone), France—<br>300 species of Australian plants. |
| | Gilg, Dr., Königl. Botanisch Museum, Berlin—<br>Collection of New South Wales Restiaceæ. |
| Goadby, B. T., Albany, West Australia—<br>95 species of West Australian plants. | Goadby, B. T., Albany, West Australia—<br>50 species of New South Wales plants. |
| | Gross, Herr R., Berlin—<br>120 species of Australian plants. |
| | Heckel, Dr. E., Marseilles, France—<br>200 species of Australian plants. |

| *Received.* | *Despatched.* |
|---|---|
| | Herb and Wulle, Messrs., Naples, Italy—<br>Carpological collection of 23 species of New South Wales plants. |
| Kew, Royal Botanic Gardens—<br>102 species of ferns from Java.<br>260 species of British plants.<br>12 species of miscellaneous plants from Lagos, Natal, and New Zealand. | Kew, Royal Botanic Gardens—<br>17 species of new or rare New South Wales plants. |
| Kneucker, Herr A., Karlsruhe, Germany—<br>21 species of rare European Cyperaceæ. | Kneucker, Herr A., Karlsruhe, Germany—<br>18 species of Australian Carex. |
| | Kückenthal, Pastor E., Coburg, Germany—<br>19 species of Australian Carex and Uncinia. |
| | Leonhardt, Herr Otto, Botanisch. Tauschverein, Nossen, Germany—<br>277 species of Australian plants, in five sets. |
| Melbourne (National Herbarium of Victoria), Victoria—<br>23 species of Victorian plants. | Melbourne (National Herbarium of Victoria), Victoria—<br>7 new or rare New South Wales plants.<br>Carpological collection of 10 species of Coniferæ.<br>45 species of plants, cultivated in the Botanic Gardens, Sydney. |
| | Munich, Bavaria, Royal Botanical Museum (Prof. Radlkofer)—<br>200 species of Australian plants. |
| | New York, U.S.A., Botanic Gardens—<br>400 species of Australian plants. |
| Perth, West Australia, Bureau of Agriculture—<br>124 species of West Australian plants. | |
| Perth, West Australia, Conservator of Forests—<br>150 species of West Australian plants. | Perth, West Australia, Conservator of Forests—<br>100 species of New South Wales plants. |
| Reed, Thos. S., Royal Geographical Society of South Australia, Adelaide—<br>39 leaf impressions of ferns, &c. | |
| Rodway, L., Tasmania—<br>25 species of Tasmanian plants. | Rodway, L., Tasmania—<br>50 species of New South Wales plants. |
| Saigon, French Cochin China, Director of Agriculture—<br>Resin of *Shorea robusta.*<br>10 bottles of various vegetable oils.<br>4 specimens of bark.<br>7 species of fungi. | |
| Singapore, Straits Settlements, Botanic Gardens—<br>250 species of Straits Settlements plants. | Singapore Straits Settlements, Botanic Gardens—<br>176 species of Australian and Pacific Island ferns.<br>145 species of Australian Cyperaceæ. |
| Sydney Technological Museum—<br>New South Wales plants. | Sydney Technological Museum—<br>5 species of Eucalypts. |
| | Sydney University, Biological School—<br>150 Herbarium specimens.<br>Carpological collection of 54 species of plants. |
| Walter, C., Melbourne—<br>287 species of Victorian plants. | Walter, C., Melbourne—<br>348 species of Australian plants. |
| | Zahlbruckner, Dr. A., K. K. Naturhist. Museum, Vienna, Austria—<br>Numerous specimens of a rare fungus, *Uncinula australiana.* |

## *Publications acquired by Purchase.*

### BIBLIOGRAPHY.

Jackson, B. D. Vegetable Technology: a contribution towards a bibliography of economic botany, with a comprehensive subject-index. 4to, pp. 354. (1882.)

### Dictionaries and Text-books.

Bailey, L. H. Cyclopedia of American Horticulture, vol. 1, 4to, pp. 509, illustrated with over 2,000 original engravings. Vol. 2, 4to, pp. 510–1054. (1900.)

Cook, E. T. The Century Book of Gardening: a comprehensive work for every lover of the garden. Large 4to, pp. 610. (No date.)

Griffith, J. W., and Henby Arthur. The Micrographic Dictionary: a guide to the examination and investigation of the structure and nature of microscopic objects. Pp. 829, plates 52. (1883.)

Jackson, B. D. A Glossary of Botanic Terms, with their derivation and accent. (1900.)

Needham, J. Studies of Trees in Pencil and Water-colours. Large 4to, 2 vols., pp. 50 each. (No date.)

Nicholson, Geo. The 1900 Supplement to the Dictionary of Gardening: a practical and scientific Encyclopædia of Horticulture for gardeners and botanists. A to F. pp. 376. (1900.)

Percival, John. Agricultural Botany—theoretical and practical. 8vo, pp. 798. (1900.)

Pritzell, G. A. Iconum Botanicarum Index Locupletissimus. 4to, pp. 1183. (1861.)

Rees, Abraham. The Cyclopædia; or universal dictionary of arts, sciences, and literature. Illustrated with numerous engravings. Vols. 1 to 45. (1819.)

Sedding, John D. Garden-craft, old and new. 8vo, pp. 215. (1895.)

Wells, W. H. A Geographical Dictionary; or, Gazetteer of the Australian Colonies: their physical and political geography, together with a brief notice of all the capitals, principal towns, villages, rivers, bays, &c. 8vo, pp. 438. (1848.)

A Catalogue of trees, shrubs, plants, and flowers, both exotic and domestic, which are propagated for sale in the gardens near London; by a Society of Gardeners. Demy, pp. 90. (1730.)

Chambers, ——. Etymological Dictionary of the English Language. 8vo, pp. 598. Edited by A. Findlater. (1899.)

Dictionary, a new Pocket, of the English and Dutch languages. Small 8vo, pp. 832. (1899.)

Millhouse, John. Italian-English Dictionary, 2 vols., 8vo, pp. 843, 731. (1892.)

### EXTERNAL MORPHOLOGY AND ORGANOLOGY (including Teratology).

Coester, Carl. Ueber den anatomischen Charakter der Mimoseen. 8vo, pp. 177.

Gaertner, J. Fructibus et seminibus plantarum. 2 vols., pp. 520, 384. (1802.)

Ralph, T. S. Icones Carpologicæ; or figures and descriptions of fruits and seeds. Part i, *Leguminosæ.* 4to pp. 48, with 40 plates. (1849.)

Tison, Ed. Recherches sur les caracteres de la placentation et de l'insertion dans les *Myrtacees* et sur les nouvelles affinities de cette famille. (1876.)

### PHYSIOLOGY.

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Huxley, T. H., assisted by Martin, H. N. A Course of Elementary Instruction in Practical Biology. Small 8vo, pp. 512. (1892.)

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### General Works on Systematic Botany.

Engler, A. Syllabus der Pflanzen Familien. 8vo, pp. 214. (1898.)

Potonie, H. Eine Landschaft der Steinkohlen-Zeit, mit 30 Textabildungen und einer Tafel. 8vo, pp. 40. (1899.)

Thonner, Franz. Anleitung zum Bestimmen der Familien der Phanerogam. 8vo, pp. 279. (1891.)

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Kippist, Richard. On *Jansonia*: a new genus of Leguminosæ, from West Australia. (Read before *Linnæan Society*, May 4th, 1847.)

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Lush, Charles. Note on the identity of three described species of *Acacia*. (Read April 17th, 1838.)

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United States Department of Agriculture. The agricultural grasses and forage plants of the United States, and such foreign kinds as have been introduced. (1889.)

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Jaeger, Dr. Augusta et Sauerbeck, Fr. Genera et species *Muscorum* systematice disposita, Ser Adumbratio Floræ *Muscorum*. 8vo, in 9 parts.

Schuimper, W. P. Synopsis *Muscorum* Europæorim Praemissa, introductione de elementis bryologicis tractante. Vol. I, Introductio; Vol. II, Specierum descriptio. Large 8vo, pp. 130, 886. (1876.)

Lesquereaux, L., and James, Thos. P. Manual of the Mosses of North America, with six plates illustrating the genera. 8vo, pp. 447. (1895.)

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Atles, Prof. Dr. Von. Essbare und schädliche Pilze. 8vo, pp. 52. (No date.)

Fischer, E. Zur Entwicklungsgeschichte der Fruchtkörper einiger Phalloideen. Large 8vo, pp. 48. (1885.)

Hallier, Ernst. Die Pestkrankheiten der Kulturgewächse. 8vo, pp. 144. (1898.)

Jorgensen, Alfred. Micro-organisms and Fermentation. 8vo, pp. 318. (1900.)

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92. A new drought-resisting crop—Soy beans.
94. Sugar-beets in 1899.
95. Fattening hogs with drought-resisting crops.
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2. Commercial fertilisers.
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4. Spraying to prevent insect injury.
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56. The San José scale.
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52. Rye-meal and Quaker oats as feed for milk production.
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68. Treatment of the sandy soils of Rhode Island.
69. A study of plant adaptions.
70. Analyses of commercial fertilisers.
71. Experiment in top-dressing grass land.
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105. Steer feeding.
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## *Aviary.*

### Presentations.

Mr. F. C. Janson, 196 George-street—2 Indian blossom-head parrots.

Mr. J. Read, Sydney—1 Sulphur-crested cockatoo (*Cacatua gymnopis*, Sclater); N. and N.W. Australia.

Master H. Hammond Maiden, Botanic Gardens—1 Red-billed liothrix (*Liothrix lutea*, Scop.); E. and S.E. Asia.

His Excellency Earl Beauchamp—1 Wedge-tailed eagle (*Uræatus audax*, Lath.); Australia.

Mr. J. Wing, Superintendent, Parramatta Asylum—1 Mallee-scrub hen.

Mr. N. A. Gatenby, Jemalong, Forbes—1 Wedge-tailed eagle (*Uræatus audax*, Lath.); Australia.

Mr. J. D. A. Riddle, Elliott-street, Balmain—5 Top-knot pigeons.

Mrs. Warnham, "Canimbla," Longueville—2 Galah parrots (*Cacatua roseicapella*, Veillot); New South Wales. 1 Rosella parrot (*Platycercus eximus*, Shaw); New South Wales.

Sergeant Hall, Police Barracks, Belmore Park—2 Blackbirds (*Merula merula*, Linn.); Europe.

Mr. John Ralphs, 8 Park-street—1 Bellwing parrot; from the Macquarie River.

### Purchases.

2 Indian blue mountain parrots (*Trichoglossus Fosteri*); India.

4 White swans (*Cygnus olor*, Linn.); Europe.

4 Barraband's parrakeets (*Polytelis Barrabandi*, Swainson); S. E. Australia.

4 Blue-bellied lorikeets (*Trichoglossus novæ-hollandiæ*, Gmelin); E. Australia.

4 Warbling grass finches (*Melopsittacus undulatus*, Shaw); Australia.

2 Crimson-wing lory (*Ptistes erythropterus*, Gmelin); N. and N. E. Australia.

2 Magpies (*Gymnorhina Tibicen*); N. S. Wales.

### Caught by Aviary-keeper.

2 Blue crane.

1 Warbling grass parrakeet (*Melopsittacus undulatus*, Shaw); Australia.

1 Pennant's parrakeet (*Platycercus elegans*, Gmelin); E. and S. E. Australia.

1 Barraband's parrakeet (*Polytelis Barrabandi*, Swainson); S. E. Australia.

PRESENTED TO—

*The Australian Museum, College-street.*

1 Indian blossom-head parrot (dead).
1 Indian blue mountain parrot (dead) (*Trichoglassus Fotsteri*); India.
1 Tragopan pheasant (dead) (*Tragopan Caboti*, Gould); S. E. China.
1 Mallee-scrub hen (dead).
1 Blue-bellied lorikeet (dead) (*Trichoglossus novæ-hollandiæ*, Gmelin); E. Australia.
1 King lory (dead) (*Aprosmictus cyanopygius*, Viellott); E. and S. E. Australia.
1 Wreathed hornbill (dead) (*Rhytidoceros plicatus*, Forst.); New Guinea.
1 White swan (dead) (*Cygnus olor*, Linn.); Europe.

*The Hawkesbury Agricultural College, Richmond.*

2 Silver pheasant hens (*Gennæus nycthemerus*, Linn.); China.

DEATHS.

1 Pennant's parrakeet (*Platycercus elegans*, Gmelin); E. and S. E. Australia.
1 Bronzewing pigeon (*Phaps chaloptera*, Lath.); Australia.
1 Black Nun.
3 Barraband's parrakeet (*Polytelis Barrabandi*, Swainson); S. E. Australia.
1 Cardinal finch (*Parsaria cuculata*, Lath.); S. America.
2 Hawks.
1 Galah parrot (*Cacatua roseicapella*, Viellott); Australia.
1 Egyptian goose (*Chenalopex ægypticus*, Linn.); Africa.
4 Rosellas (*Platycercus eximus*, Shaw); N. S. Wales.
2 Indian blossom-head parrots.
1 Blue crane.
2 Blue-bellied parrakeet (*Trichoglossus novæ-hollandiæ*, Gmelin); E. Australia.
2 Common pheasant hens (*Phasianus colchicus*, Linn.); China.
1 Bleeding Heart dove (*Phlogœnas leuzonica*, Scop.); Philippine Islands.
1 Tragopan pheasant (*Tragopan Caboti*, Gould); China.
1 Galah parrot (*Cacatua roseicapella*, Veillott).
1 White-bellied bronzewing (*Lophophayps leucogaster*, Gould); N. W. and Central Australia.
1 White Java sparrow (*Munia orizava*, Linn.); Java.
1 King lory (*Aprosmictus cyanopygius*, Veillott); E. and S. E. Australia.
1 Black swan (*Chenopis atrata*, Lath.); Australia.
1 Silver pheasant hen (*Gennæus mycthemerus*, Linn.); China.
2 Common pheasant cock (*Phasianus colchicus*, Linn.); China.
1 Owl from New Guinea.
2 White swans (*Cygnus olor*, Linn.); Europe.
1 Port Lincoln parrot (*Platycercus zonarius*, Shaw); Central and S. Australia.
1 Pectoralis.
1 Hybrid pheasant (silver-cross common).
1 Blue Java sparrow (*Munia orizara*, Linn.); Java.
1 Warbling grass parrakeet (*Melopsittacus undulatus*, Shaw); Australia.
2 Chestnut-breasted finch (*Donacicola castaneothorax*, Gould); N. and N.E. Australia.
1 Indian blue mountain parrot (*Trichoglossus Forsteri*); India.
1 Mallee-scrub hen.
1 Wreathed hornbill (*Rhytidoceros plicatus*, Forst.); New Guinea.
1 Wonga pigeon (*Leucosarcia picta*, Latham); E. and S.E. Australia.
1 Spotted sided finch (*Stagonapleura guttata*, Shaw); E. and S.E. Australia.
1 Crimson-wing lory (*Ptistes erythropterus*, Gmelin); N. and N.E. Australia.
1 Sulphur-crested cockatoo (*Cacatua galerita*, Latham); E. Australia.

## Government Domains.

(MR. JAMES JONES, Overseer.)

*Introductory.*—The year 1900 has not been marked by many new works or important improvements in the Government Domains. The ordinary parliamentary vote for contingent expenses does not leave much margin for new work nor extraordinary expenditure.

Towards the latter half of the year considerable labour and expenditure had to be incurred in connection with the coming federation of the Australian Colonies and the arrival at Government House of a new Governor-General. These outlays have not been recouped, and, therefore, some necessary improvements to roads and paths had naturally to be postponed to the next financial year.

During the early part of the year, on account of the bubonic plague scare in Sydney, and the fear of the invasion by rats of Government House from adjacent wool stores and ships, it was considered advisable to fill up all duck ponds in the Inner Domain, which was accordingly done by the Works Department; also, the boundary iron railing was rendered impregnable to their incursions by fixing a close corrugated-iron lining against the upright bars, so that no entrance could be obtained by these pests except at the main gates, which, however, was impossible in practice.

April 23rd was a memorable day, when 25,000 people flocked into the Outer Domain, to view the departure of the Imperial Bushmen troops for the seat of the war in South Africa. The day was a proclaimed public holiday. The troopship "Syrian" steamed out from Woolloomooloo Bay with 700 men and 500 horses on board, and the Domain was the vantage ground to view the departure. The rather frequent departures of troops from the bay, which forms one of the boundaries of the Outer Domain, has necessarily resulted in rather heavy wear and tear; but very little wilful damage to park property has resulted.

December 15th witnessed the arrival and landing of Lord Hopetoun, our first Governor-General, the landing-stage and pavilion being erected in the Outer Domain, overlooking Farm Cove. This day, probably, witnessed the greatest concourse of the highest dignitaries in the land that ever was seen in the Outer Domain. The route of procession was from Mrs. Macquarie's Point and Victoria Lodge, by the Garden wall to the Director's residence, and thence by the fig-tree avenue to Governor Bourke's Statue, passing through Macquarie-street gates, and thence to Government House.

Mr. Cavill's floating baths were removed from the western side of Macquarie promontory in Farm Cove to the eastern side in Woolloomooloo Bay, opposite Garden Island.

A floating landing stage took their place, decorated in Venetian style. A portion of the dwarf sea-wall was transformed into a handsome balustrade, with two tall Doric columns, surmounted by Roman cressets in bronzed metal, giving quite a Venetian appearance to the locality.

A handsome octagonal Reception Pavilion (worthy of preservation) was erected on the green, from whence a broad flight of 93 steps ascended to carriage road, 40 feet above, where the procession of carriages really began.

Amongst the embellishments and triumphal arches erected in Sydney, in honour of the Federation, one of the most unique was an arch of Newcastle coal, in the Outer Domain near St. Mary's gate.

*Roads and Paths.*—No new roads or paths were made during the year, but the existing ones have been kept in fairly good repair.

The lower road, Inner Domain, from its junction with the main carriage entrance road, near the stables, to its termination at the lawn tennis ground lower gates, has been widened by 3 feet for the whole of its length, and ballast laid where required. This road now requires a further top-dressing with blue metal and screenings, and the sides properly levelled down.

A new side carriage entrance has been made to Government House on the west side. Several flower-beds and a portion of the lawn were encroached upon, the ground excavated, ballasted, and metalled. The excavated material being of good black soil, was used to fill and level up other low portions of the lawn where required. Eight hundred feet of drain-pipes were laid to carry away both surface and underwater. All the garden paths in front of Government House were top-dressed with decayed granite gravel from certain railway cuttings in the western line, which, although expensive, is admirably suited for the purpose, giving the walks always a bright, clean appearance.

The Inner Domain generally has received a fair share of attention, but our present Domain vote is not sufficient to meet a number of obvious requirements.

In the Outer Domain, a section of the Fig-tree carriage road, 170 yards in length, was broken up and re-metalled in the usual way, except about 30 yards in front of the Botanic Garden main entrance which was laid down with tarred metal and topped with asphalt, thus giving to this portion a smooth, clean surface in all weathers. It is a matter for serious consideration whether this style of road-making may not be further extended, having both suitability and economy in view. The steep and dangerous asphalt incline facing Cowper Wharf has been, on two occasions, floated over with boiling tar, and immediately sprinkled with dark blue metal screenings, thus roughening the otherwise slippery surface, and lessening the danger of accidents. Several minor and a few serious accidents have occurred here from time to time, and it is to be hoped that something will soon be done to lessen the dangerous grade of 1 in 9, which here exists, a special danger to descending vehicles, and to persons on horseback.

The central pedestrian avenue, from St. Mary's to the Botanic Garden gates, has been advanced a stage, by having the upper and last section asphalted at least one coat, and now only requires a top-dressing to finish.

The narrow foot-path, leading along the ridge of the hill from Farmer's Baths to Mrs. Macquarie's Point, has been tarred and then top-dressed with fine asphalt. This walk, which is over 400 yards in length, is not very much used, and was, therefore, difficult to keep clean and tidy.

The Beach walk on the eastern side of the promontory, which was liable to frequent and dangerous shrinkages, on account of the silt washing away from underneath, has been consolidated and repaired. A loaded cart was employed to find out and crush down the weak places, which were then filled up with hard stone and subjected to further traffic, until the whole would not receive any further impression. The surface then received a coat of gravel, and is safe for some time to come.

The Beach walk on the western side of the promontory, or eastern side of Farm Cove, in the vicinity of the Governor-General's landing-place, was thickly covered with blue metal and gravel by and at the expense of the Public Works Department; and had the Department only had the time to tar the metal before laying it down, we should have had a walk that, with slight attention, would have lasted for a long period.

The cross footpath leading from Riley-street towards the Art Gallery and joining with the Palmer-street road was top-dressed with the Gas Company's asphalt for two-thirds of its length, viz., 180 yards, and afterwards painted over with hot tar.

*Kerbing and Fencing.*—540 feet, 8 x 8 inches, new kerbing to footpath, at 1s. 8d. per linear foot, has been laid alongside the garden aviary wall, and 330 feet, 9 x 3, round top kerbing, at 1s. per foot, around the Palm Garden. The guttering on road sides is generally laid in asphalt.

Iron hurdle fencing to the extent of 372 feet has been erected around the Palm-tree corner, at a cost of 4s. 6d. per linear foot.

A chain and wooden post, turned topped fence, 472 feet in length, has been set up with good effect around a narrow triangular strip of grass and young trees near St. Mary's entrance. This strip, heretofore trampled down and undistinguishable from the broad pathway adjoining, is now green and attractive.

*Plantations.*—One small but important plantation has been made, which it is intended to consist mostly of palm-trees and roses. This is directly opposite the principal entrance of the Domain at St. Mary's gate, and gives visitors a good impression as they enter the Domain. This spot used to be quite bare of vegetation and unsightly.

Some old unhealthy trees were removed, the ground trenched and filled up by the addition of some hundreds of loads of soil, enclosed by a neat hurdle fence, and planted with young palm-trees and roses, interspersed with flowering annuals.

The acacia or wattle-tree plantation, near Macquarie-street, has been enlarged and augmented by additional sowings of some 40 species, which seem to be thriving fairly well. It is intended to further increase this plantation as new varieties can be procured. This ground has cost much labour in the eradication of nut grass (*Cyperus rotundus*, Linn.), with which it was entirely over-run at one time.

The pruning of large straggling trees and old decaying ones has occupied a considerable share of our attention.

*Weather.*—The beginning of January, like the previous month of December, having been dry and parching, our macadamised roads suffered considerably, and the water-cart had frequently to be used to prevent them breaking-up badly. On the 10th of the month however a thunderstorm resulted in some very refreshing rain. During this storm the lightning struck the Refreshment Kiosk, and some of the occupants were hurled to the ground, and quite stunned for a time. The stove and cooking utensils were scattered all over the floor, the gas-pipes fused, and the stone block on which the cooking stove rested was smashed in pieces.

On the 14th February there occurred another sudden storm, accompanied with heavy but unprofitable rain; gutters, cesspits, sewers and surface drains all proving inadequate to carry away the sudden flow. Streets were flooded in Sydney, and houses in Woolloomooloo. In the Domain the 16-inch drain pipe conveying surplus water from the Royal Mint to the Botanic Garden ponds burst up near the cricket ground, and we could have sailed a boat all over that quarter. At the Sydney Observatory 1⅓ inches of rain were registered in 1½ hours, but ¾ inch fell within 10 minutes. These sudden downpours of rain with wind do but little good to the grass and trees, and cause much extra labour, as well as harm to the vegetation, to the roads, and surface soil.

A spell of six weeks of very dry weather followed, during which many old-established trees suffered severely and had to be artificially watered to save their lives. The trees which showed most distress in the following order were Brush Box (*Tristania conferta*), Norfolk Island Pine (*Araucaria excelsa*), *Pinus excelsa*, *Pinus insignis* and Elm trees. Towards the end of March, however, we were relieved

eved from the necessity of all further artificial watering. On Sunday, 1st April, at 4 p.m., there occurred a sudden and heavy downpour of rain which quickly drenched and scattered the large crowds of Domain visitors. During the first week of April, 6 inches of rain were added to the register, most of which fell in the three first days.

On 6th April, an old oak tree about 40 years of age, standing near the cattle drinking trough near St. Mary's-road, though umbrageous and healthy looking, was blown over. It was found, however, that the roots were much decayed, and that death occurred from natural causes.

*24th May, Queen's Birthday.*—The public holiday usually celebrated in the Domain by family and children's picnics, was spoiled by heavy rains, which lasted at this period off and on for ten days, giving 11 inches in all.

From 6th to 12th June there were further heavy rains, 10 inches having fallen. On the 7th a heavy gale, travelling 60 miles an hour, did considerable damage, giving a whole week's extra and profitless work for all hands.

The month of July brought further rains with a 70-mile gale on the 5th, with the usual results. It always happens during heavy rain-storms the Outer Domain is the loser of a quantity of valuable road material and surface soil which is carried down into the Garden ponds, where it is anything but welcomed by the employees there, the aquatic birds and plants, or by the fishes. This no doubt could be largely prevented by a system of storm-water drainage conveying the flood waters into Woolloomooloo Bay where it would be dredged up in usual course.

Towards the end of July the registered rainfall at Sydney Observatory amounted to 50 inches for the seven months, which is the usual proportion for an average year.

In December the weather was mostly dry and parching, with frequent dust storms, demanding much plant, tree, and road watering. The 17th was the hottest day of any December month in Sydney, the temperature being 104·2 degrees. The effect on the newly-planted palms and seedling plants, as well as many shrubs and trees, was very marked. Bush fires raged in several country places, the great heat seemingly reaching to Sydney.

*Water.*—A new 4-inch fresh-water main has been laid on to the carriage terminus at Mrs. Macquarie's Point, from the termination of the 4-inch main at Farmer's baths. A temporary drinking tap has been set up in lieu of a suitable fountain, which would be well placed and much appreciated in this locality. The above work was carried out by the Water and Sewerage Board.

A supply of water has been laid on to the Palm ground from the meter in the Rosarium, and the supply in the acacia ground has been extended from the meter already placed there.

In the Palm ground and in the Rosarium a universal jointed nozzle has been fixed on the stand-pipes, which delivers the water in a fine spray at 18 to 20 yards or so, according to pressure, and does away largely with the dragging of a gutta-percha hose over the flower beds, besides which it economises time and labour.

Following is the registered water supply during the year:—

| | Gallons. |
|---|---|
| Meter No. 222—Enclosure near Macquarie-street entrance | 3,000 |
| Meter 223—Cattle trough, St. Mary's entrance | 9,000 |
| Meter No. 219—Enclosure near St. Mary's entrance | 75,000 |
| Meter No. 220—Cattle trough near cricket ground | 19,000 |
| Total | 106,000 |

*Lighting.*—The long-desired electric lighting of the Domain is at last *un fait accompli.*

There are now sixty-eight lamps fixed upon tall poles, 60 feet high, in various places. There are fifteen poles carrying from four to seven lamps each. These are alight every evening of the week from 7 to 10 p.m. except on Sundays. Of course there are numbers of people in the Domain after 10 o'clock, but these are not provided for. The umbrageous trees, however, greatly interfere with the proper lighting of the roads and paths, and nothing but rows of smaller lamps at a less height from the ground would accomplish this purpose.

The band-stand has not so far been illuminated, and consequently no evening performances could be inaugurated.

*Seats—Trellis.*—Fifty new seats have been added to those already in use, chiefly about the band-stand and Macquarie Point. The seats are made of hardwood, 6 feet in length, and can accommodate five persons.

An iron trellis stand for climbing roses has been erected in the Rosarium in place of the temporary one made of bamboo.

*Railings and Fences.*—During the month of September, Contractor Mr. J. Howie commenced the erection of dwarf stone wall and high iron railing along the line dividing the Outer Domain from Botanic Gardens, in lieu of an old corrugated-iron fence which has been an eyesore for many a day. The new wall and railing will cost, roughly estimated, about £1 per linear foot. This work has necessitated some alterations in outline and levels of carriage-road and adjoining footpaths, greatly, however, to their advantage.

*Public Latrines.*—These necessary and important buildings are much valued by a large section of the public. The man in charge takes a real interest in his work, and the condition of the place is always a credit to him.

*Music.*—Our Domain bandstand has not been so well patronised by musical performers as I would like to see, although the audiences on band days have been numerous and appreciative. On two separate days the overseer counted 2,500 people present, namely, the 3rd January and 27th February. These were Wednesday afternoons, the usual band day, on which the Royal Australian Artillery Band discoursed their choicest programmes. This band gave fifteen performances during the year. With regard to other bands, the engagements for the twelve months were as follows:—

| | | | |
|---|---|---|---|
| Band of 2nd Infantry Regiment | 1 | Saturday, | 17th March. |
| New South Wales Police Band | 1 | „ | 23rd June. |
| Band of Australian Rifles | 1 | Sunday, | 15th July. |
| Salvation Army Band | 1 | „ | 22nd July. |
| Railway Military Band | 1 | „ | 29th July. |
| Newtown Brass Band | 1 | „ | 2nd September. |
| „ „ „ | 1 | „ | 11th November |
| „ „ „ | 1 | „ | 30th December. |

The

The Royal Australian Artillery Band also played in the Botanic Gardens on six Wednesday afternoons. Most Bands, except Military and Police, take up collections, generally for some laudable purpose.

*Government House Grounds.*—Besides several additions to Government House and its out-buildings, which have been made by the Government Architect, a handsome fountain, with basin, has been erected in the spacious stable yard, and some flower beds have been introduced along the sides of the rectangular enclosure.

During the month of May, the old stone houses close to Government House, and built of dressed stone about Governor Macquarie's time, were demolished; also the piggeries and fowl-houses of twenty years ago. The site on which they stood was filled in with soil, etc., and the ground smoothed and grassed into a sloping bank and green sward.

A suite of rooms and accommodation for some of the Governor-General's servants has been built on the adjacent ground.

Towards the end of the year five acres were deducted from the Inner Domain, and attached to the Botanic Gardens, to the great advantage of the latter. A temporary fence has been erected, which, it is hoped, will soon give way to a more appropriate picket or iron railing, or, as some would like to see, an old English ha ha, and light dwarf iron fence, which would not spoil the beautiful view from either side.

*Other Work.*—The only outside work of any importance coming immediately under the supervision of the Overseer of Domains, has been the formation of a new Bowling Green and Tennis Lawn at Parliament House, and have been formed satisfactorily.

The Jenolan Caves grounds have been visited, and arrangements made for the maintenance of the numerous trees and shrubs already planted there.

The town of Bourke was visited, and suitable plantations made about the new court-house, where palms and tree-ferns have been introduced.

Garden and grass plots at the Redfern Mortuary, the Education Offices, Bridge-street, the Registrar-General's Office, and the Supreme Courts, &c., have been attended to as required.

## Garden Palace Grounds.

(MR. J. H. CAMFIELD, Overseer.)

*Weather and Water Supply.*—So far as the ordinary routine work of these grounds is concerned the year may be considered to have been a particularly favourable one. Except in the very early part of the year the rainfall has been fairly regular, and with one exception not characterised by those terrific downpours, which in some seasons are more frequent, and often very devastating. The same regular rainfall, together with the comparatively cool summer weather experienced, both at the beginning and also at the end of the year, secured the generally satisfactory appearance of the grounds. Of course, in regard to the smaller plants and seedlings, a great deal of watering has to be done with hose and water-can every summer, sometimes in the dry seasons, even in the autumn, and winter months also; but it is very seldom that we are able to get through the summer season without recourse to, at least, occasional irrigation on a much larger scale, of shrubs and other large-growing subjects. However, except during January, very little irrigation was needed. A further result of this favourable weather has been that the lawns preserved their freshness to a degree which is not at all usual, so that there has been green grass all the year round. Again, for the same reason, the annual and herbaceous plant borders have been generally gay with flowers, even during the hottest of summer weather, at the close of the year. The following is the registered water supply during the year:—

| | Gallons. |
|---|---|
| Meter No. 216 ... ... ... ... ... ... ... ... ... ... ... ... ... | 1,075,000 |
| Meter No. 218 (lawn near Governor Phillip's statue) ... ... ... ... ... ... ... | 109,000 |
| Total ... ... ... ... ... ... ... ... ... ... .. ... ... | 1,184,000 |

*Preparation for Commonwealth Celebrations.*—Efforts were made, as far as means would permit, to worthily contribute towards the celebrations of the great event of the inauguration of the Australian Commonwealth. The particular direction in which the effort sought its outlet, as far as the horticultural effect was concerned, was in the designs devised for the bedding-out arrangements. In regard to what is termed the "X" bed, situated on the right-hand side of the main walk, leading from the principal entrance, opposite the Governor Burke statue, the design consisted of two scrolls, with the word "Advance" on the upper, and "Australia" on the other, in large Roman capitals, and between the two representations of the "flannel flower" and "wattle," the whole design being worked with the various *Alternantheras.* The arrangement was figured in the *Daily Telegraph* newspaper of December 25th. Further along, on the same main walk, at the angles formed by the cross walk, two mottoes were worked in large, bold letters, on the borders of the shrubbery beds—one on either side, viz.: on the right side, "Unity is Strength," and on the other side, "Australian Commonwealth, 1901." Following the same path down the intervening two flights of steps to the small triangular piece of lawn on the left-hand, where there are three beds devoted to colour-bedding, that at the middle of the angle had the letters "F." and "A."—the initials of "Federated Australia," with the date.

During the month of December a very large number of visitors thronged the gardens, both from the different States, and from New Zealand, and it is a matter of satisfaction that owing, as already stated, to the favourable weather prevailing, they presented for the time of year a very favourable appearance.

*Addition to Grounds.*—An important and valuable addition has been made to the grounds since the publication of the last report, which will greatly enhance the convenience of visitors, and will immensely improve the appearance of the property from a landscape point of view.

Until the latter part of last year the boundaries of these grounds continued to be practically identical with those aligned at the time of the Exhibition of 1879, excepting the removal of the iron railing at the north-east boundary, alluded to on page 25 of my Report for 1899, and a very minor alteration to the end of the picket fence, opposite the Colonial Secretary's Office, no other alterations have taken place.

The dividing picket fence between the Government House grounds, just below the stable enclosure and the Garden Palace grounds, has always looked particularly objectionable from the fact of its close proximity to the path used by visitors at this spot. Owing to the narrow space available between the somewhat steep grass bank and the fence, there was not sufficient room to make any material change for improvement, but now, on account of this recent addition,—the fence having been taken down and re-erected further back—the opportunity presents itself to effect some much-needed alterations.

*Enlargement of Camellia Bed.*—The camellia bed, situated in the north-east corner of the grounds, has been much enlarged. The additional ground required for the same has been thoroughly and deeply trenched, so that there is about 3 feet of fairly good soil for the plants to root into. A large percentage of the old soil had to be removed, being chiefly sand and very stony. About 150 loads of deposit from the bottom of the large pond in the Botanic Gardens were carted into the bed after having been exposed to the air for some time; also, about 60 loads of yellow loam, which came from the foundation of the new premises being erected for Messrs. Dixson and Sons in Elizabeth-street, and 30 loads of good dark loam were carted from Marrickville. In the coming season it is intended to plant the addition with as good a selection of camellias as can be secured.

*Removal of a large Moreton Bay Fig-tree.*—This particular tree occupied a situation in close proximity to the camellia bed just mentioned, and had long been marked for the axe, in consequence of the damage it was doing to the plants therein. Some six years ago the roots of it were cut through. A semi-circular trench was dug at about 18 or 20 feet from the base on the side nearest the bed; but that is a remedy which lasts but for a short time, and to be constantly effective needs, in the case of the Moreton Bay or large-leaved fig (*Ficus macrophylla*, Desf.), frequent repetition, which is not at all a satisfactory method, unless it be an absolute necessity to save a tree, which in this case it was not.

*Top-dressing of Lawns.*—The discarded soil mentioned previously was utilised in the top-dressing of part of the adjacent lawn. The surface of the remaining portion of this lawn at the present time is very uneven, and it is desired, as speedily as circumstances will permit, to remedy the inequalities; but the difficulty is to obtain the necessary soil for the work. However, it is hoped that a suitable opportunity will present itself.

Top-dressing was also done in regard to the lawns on either side of the walk leading from the main entrance. That on the right hand was finished, and now presents a fairly even surface, but until the slowly-decaying debris of which the lawns have generally been made up consolidates, the sinking process must continue.

The opposite lawn—*i.e.*, the Governor Phillip statue lawn—was top-dressed because of its extreme poverty. At the south end—that nearest the main entrance—the soil is very shallow, it being not more than about 9 or 10 inches in depth, and being so near to the main entrance the traffic over it is very heavy, so that in droughty times the turf looks very brown and dried up. Silt from the creek, with yellow loam, and in some places the addition of well-rotted horse manure, has given to this lawn an increase of vitality which it greatly needed.

*Minor Works.*—A new picket gate was substituted at the main entrance in lieu of the old one which had done duty ever since the erection of the gates in 1888. There is still need, perhaps, for the introduction of a good gate which will do duty for a long time without getting out of order. The chief requirements of such a gate are that after it has been opened by the visitor (which he should be able to do as easily as possible, and with as little noise as possible) that it should act automatically—that is, that it should quickly close, and that it should possess sufficient stability in its state of rest to resist wind pressure and the efforts of dogs to push it open, and also that it should not swing off its hinges by either violent opening or shutting.

During the year six new seats were added, and the whole of those already in the grounds, together with the small fountains, ornaments, and vases, were thoroughly cleaned, painted, and varnished.

The gate in the south-east corner of the grounds, which until recently had been used to facilitate carting operations in this section of the grounds, was removed, and the picket fencing between the Garden Palace grounds and Outer Domain continued in its place, in consequence of changes referred to in previous reports.

## Centennial Park.

(Mr. William Forsyth, Overseer.)

*Tree-planting.*—This work, so necessary in the Centennial Park, bleak and exposed as the greater part of it is, was rigorously carried on during the past spring. The names and number of the species are as follows:—

| | |
|---|---|
| Swamp Mahogany (*Eucalyptus robusta*, Sm.) | 43 |
| Large fruited Forest Mahogany (*Eucalyptus resinifera*, Sm.; var. *grandiflora*) | 30 |
| Yellow Bloodwood (*Eucalyptus eximia*, Schau ) | 28 |
| Coral Tree (*Erythrina speciosa*, Andr.) | 23 |
| *Phœnix canariensis*, Hort. | 18 |
| *Phyllanthus Ferdinandi*, Muell. Arg. | 15 |
| *Acacia stricta*, Willd. | 13 |
| Cootamundra Wattle (*Acacia Baileyana*, F.v.M.) | 8 |
| Port Jackson Fig (*Ficus rubiginosa*, Desf.) | 10 |
| Moreton Bay Fig (*Ficus macrophylla*, Desf.) | 1 |
| Live Oak (*Quercus virens*, Ait.) | 4 |
| *Pinus Massoniana*, Sieb. | 5 |
| | 198 |

Also the following shrubs:—

| | |
|---|---|
| Tea-tree (*Leptospermum scoparium*, Forst.) | 9 |
| Red Bottle-brush (*Callistemon lanceolatus*, DC.) | 13 |
| Total | 220 |

Nearly

Nearly all the *Eucalyptus robusta* were planted on the site of what was, and is now in wet weather, a swamp. *E. resinifera*, var. *grandiflora*, and *E. eximia* have been planted on the slope (about half along) on the left hand side of the Grand Drive, where it takes a northerly direction from the Cleveland-street entrance. These three species have been planted to replace one of the groups or clumps, *E. eximia* having been planted to replace one of the groups of *Acacia longifolia* planted in 1897 and which has failed. A number of plants of *Erythrina speciosa* (23) have also been planted in a group. This species looks very bright in the early spring, but from experience, it must be planted where it will get some root moisture during the very dry weather. Such a position, close under the Grand Drive on the side opposite to the group of *E. eximia*, has been allotted to it. *Phœnix canariensis* has been planted just inside the border skirting the middle promontory or tongue of land which juts out into No. 5 dam. From the success which has already attended the planting of a few in the border close by, it is anticipated that the palms in question will, in the course of a few years, not only afford shelter to the plants on the promontory, but form a much-desired palm-feature of the vegetation at this part of the park.

*Phyllanthus Ferdinandi* and *Acacia stricta* have been planted to replace the other group of *Acacia longifolia* planted in 1897, and which species, which seems specially liable to destruction by insect pests, was a failure. The *Phyllanthus* plants are, of course, intended to be the permanent ones, those of *A. stricta*, which is a mere shrub, being intended to fill up the vacant spaces until the others grow. The *Acacias*, however, are making wonderful growth

*Acacia Baileyana*, *Ficus rubiginosa*, *Ficus macrophylla*, *Quercus virens*, *Leptospermum scoparium*, and *Callistemon lanceolatus* have been planted principally to replace failures. The *Leptospermums* and *Callistemons* were planted to take the place of the plants of *Leptospermum flavescens* planted last year, every one of which died.

Nearly all the trees (not shrubs) planted last year are alive and thriving, the two species of *Eucalyptus*, viz., *E. robusta* and *E. botryoides* are looking especially well.

*Protection of Native Vegetation.*—This matter is still in an unsatisfactory state. There is, I believe, money available, but from some departmental reason it cannot be used.

*Native Flower Plantation.*—We have at last been able to get this plantation under weigh. The piece of land forming the most easterly promontory in No. 5 dam has, at the point of its junction with the mainland, been fenced off with a strong iron fence. On this promontory an arrangement of beds has been made. At present the collection of plants is a small one, and some of the Natural Orders are represented by only a few species, but the following are fairly well represented, viz.:—*Leguminosæ*, *Myrtaceæ*, *Iridæ*, *Liliaceæ*, *Restiaceæ*, and *Cyperaceæ*. The number of Natural Orders will increase year by year. Outside the beds, and following the outline of the promontory, a hedge of *Coprosma Baueriana* has been planted, which is intended to act as a breakwind, and thus affords the plants some protection from the winds which occasionally sweep over this part of the park with considerable violence.

*The Weather.*—The weather during the past year has not by any means been favourable for such a dry, sandy place as the Centennial Park; towards the end of the year especially, plants were very much parched. During a thunderstorm in the month of December an old plant of *Pinus pinaster* (Cluster Pine), about 40 feet high and at a height of 2 feet from the ground, 16 inches in diameter, was struck by lightning, and although apparently not much injured, killed.

*Tarring and Metalling of Roads and Paths.*—The usual work in connection with the maintenance of roads and paths has received due attention. During the past year, besides a good deal of patching of the asphalt roads and footpaths, about 76,000 square yards have been floated with tar.

A macadamised portion of the main drive near to Randwick entrance having got into a state of disrepair, about 1,760 square yards of it was reballasted and remetalled.

The road leading from Market-street entrance to the Grand Drive, alluded to in my last report, has well stood the test of the traffic, and at the present time it is one of the best roads in the park.

The very necessary work of converting the Grand Drive into an asphalted road is being proceeded with as funds permit.

*Road between Queen and Ocean Streets.*—I have much pleasure in reporting that this road has been ballasted and metalled, so as to render it fit for traffic. It is much used by the public; and if it were topped with tarred screenings, so as to give it a smooth surface, many more people would use it, especially cyclists.

*The Ride.*—Owing principally to the very dry weather of last summer, the ride became badly cut up and unpleasant to ride on—so much so that it was considered advisable to close it for about three months, being reopened for traffic early in December. During the period it was closed steps were taken to have the ruts filled in, all the Parramatta grass (*Sporobolus indicus*) taken out, and the whole ridge top-dressed with well-rotted street sweepings. The result is that although we have had a few very dry months this summer, the ride at the present time is in good condition.

*Cyclists.*—The park with its large area of smooth asphalted roads continues to be a favourite resort of cyclists. Cyclists occasionally infringe the By-laws, the "scorcher" being the greatest offender; but, on the whole, the cyclists are fairly well behaved. It is a pretty sight at night to see the bicycle lights twinkling all over the park, reminding one of the "will-o'-the-wisp."

*Erection of Buildings.*—Not so much has been done in this direction during the past year, with the exception of the erection of a much needed potting shed in the propagating ground. The buildings for the staff are poor and unsuitable, and endeavour is made to replace them as funds are available.

*Lighting.*—The park is badly lit at night, a circumstance which prevents many people using the park, except on moonlight nights. I hope that arrangements may be made at an early date for lighting it by electricity. If a successful installation be established, bands of music during the summer evenings will follow as a matter of course, to the great advantage of the people.

*Latrines.*—Nothing has been done in this important matter during the past year.

*Water Supply.*—Following is the registered water supply during the year:—

| | | |
|---|---|---|
| Meter No. | 350—Cottage, fountain, etc. ... ... ... ... ... ... ... ... | 84,000 gallons. |
| ,, | 351—Plantations ... ... ... ... ... ... ... ... ... ... | 26,000 ,, |
| ,, | 352—Stables, refreshment-room, etc. ... ... ... ... ... ... ... | 68,000 ,, |

*Statuary.*

*Statuary, etc.*—We have been practically free from vandalism during the past year. Our most important loss was a wing of one of the statues of the "Griffins," which was found broken off; but, on examination of the break, the occurrence seemed to have been caused by a defect in the stone, which was accentuated by exposure to the weather.

*Plants Stolen.*—I regret to have to report a continuance of the chrysanthemum stealing. Last autumn plants were taken before they had flowered, and also when in flower. Altogether, we lost over two dozen plants. The thieves did not confine their actions to chrysanthemums, several small plants of *Cupressus* being missed.

*Water-fowl*—During the year two of the black swans were found dead. It was found impossible to discover the cause of death; but, as a protection against dogs and mischievous persons, it may be considered necessary to have the wire netting surrounding the fowl pond renewed.

*Military Camp in the Park.*—During the latter half of December a military camp for some of the troops employed in the Federal celebrations was pitched in the park. I hope this will not be repeated, for there are no suitable sanitary conveniences in the park, and also because of the behaviour of many of the men. As a rule, if a trooper wished to reach his camp in the park, he made a bee-line to the spot, without taking the slightest notice of roads or rides. This bad example was copied by civilian riders, who naturally wish the same privileges as their military brethren. The result has been that the Regulation confining horsemen to roads and rides has been very difficult to enforce.

*Gates for Cleveland-street Entrance.*—During the year 1899, 276 head of stock were impounded from the Centennial Park. This number, though fairly large, was far exceeded by the number for 1900, viz.: 443 head. This is a large number of stock to impound in one year, and means a considerable amount of labour for the rangers. I feel certain that if gates, even temporary ones, were erected at Cleveland-street entrance, so that all the gates of the park could be shut at night, much of the trouble caused by straying stock would disappear.

## State Nursery, Campbelltown.

(Mr. J. McEwen, Superintendent.)

*Distribution of Plants.*—The plants raised and sent to the Botanic Gardens for planting out and for distribution during the year numbered 97,030 trees, shrubs, bulbs, tubers, etc., nearly 30,000 of which were in pots and all of high quality.

*Preparation of Plants for the Season of* 1901.—The usual stock (which includes many additional varieties of plants) now being raised for future distribution is unusually fine, and promises to be of high quality before being sent out next winter.

*Seeds and Plants, etc., Received.*—Seeds, plants, and cuttings in 26 consignments (a large proportion from the Botanic Gardens) have been received, and from these many new species and varieties of plants have been added to the stock in the nursery, whose condition reflects credit on the Superintendent.

*The Weather.*—Again the year opened with very dry and hot weather, but as the season advanced genial rains fell, and the autumn and winter months proved very favourable for all operations in the general work of the nursery.

*Water Supply.*—Following is the registered water supply during the year:—

Meter No. 245 ... ... ... ... ... ... ... ... ... ... 213,000 gallons.

*Arboretum.*—The small *arboretum* planted last winter is making good growth, and in a few years will show the adaptability of many species of timber and other trees to the soil and climate of county of Camden, and to many other parts of the Colony.

*Phylloxera-resistant Stocks.*—On account of the Department of Agriculture, over 20,000 of these stocks were raised from cuttings imported from France. These comprised eight species and varieties of reputedly high value. The cost of the necessary labour in connection with these stocks was defrayed by the Department of Agriculture, and the work done was highly reported on by the Department in question.

*Improvements.*—I have to report the erection of a substantial brick office with tiled roof. This building was badly required, and the work reflects credit on the Government Architect.

## Hill View (Sutton Forest).

(Mr. R. A. Proudfoot, Gardener in charge).

The country residence of His Excellency the Governor.

## Admiralty House (North Sydney).

(Mr. A. Weston, Gardener in charge).

The official residency of His Excellency the Naval Commander-in-Chief of the Australian Station.

Endeavour has been made to keep these properties in as good order as possible with the means at my disposal.

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